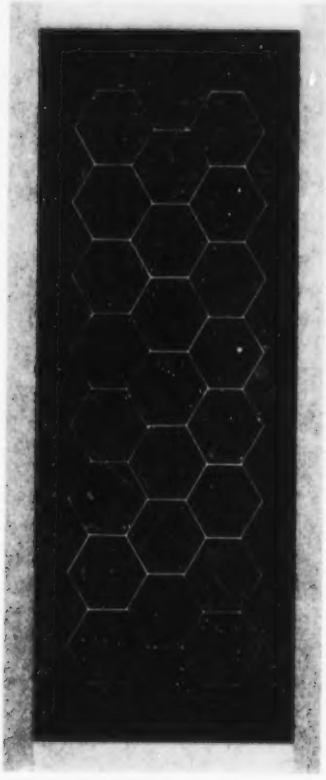
THE ECONOMICS OF HONEY PRODUCTION



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The Economics of Honey Production in Alberta, 1998

by

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SECTION I

INTRODUCTION

Costs and Returns for livestock, crops and several other enterprises have been monitored in the province in an extensive way since the 1960's. These studies have been viewed as an important tool for assisting producers in their cropping decisions and the federal and provincial governments in developing policies and programs for the different farm enterprises. Where information gaps existed in other provinces, results from these studies have served as the basis to fill those gaps.

Production costs and returns for the beekeeping (honey production) sector of the agriculture industry have been monitored periodically since the early 1970's. The 1998 Costs and Returns is a continuing effort to monitor honey production in the province. Information presented in this report can be used for a variety of reasons including program evaluation and policy developments for the honey industry. It also assists the individual study participants to compare their costs and returns with the group averages to develop/manage their operations better.

OBJECTIVES OF THE STUDY

Following are the objectives of this study:

1. To determine production costs and returns associated with beekeeping in Alberta.
2. To establish physical input/output relationships for beekeeping in Alberta.
3. To provide each study participant with a detailed analysis of his/her beekeeping operation and an opportunity to compare the operation with the group averages.
4. To document how variation in size of operation affects net returns.
5. To observe regional differences in costs and returns for beekeeping operations across the province.
6. To provide an up-to-date economic report on beekeeping to assist governments in developing programs and policies for this industry.

THE STUDY SAMPLE

A total of 30 beekeepers were randomly selected across the province to obtain production costs and returns date for the 1998 year. Attempt was made to obtain data from all of the selected participants. However, only 22 beekeepers could be visited to obtain the needed information for the 1998 study. The sample of 22 beekeepers comprises of three (3) pollinations and nineteen (19) honey producers. The results presented in the study are based on 22 beekeepers (3 pollinations and 19 honey operations) in Alberta. Regional breakdown of the sample is as follows:

Group	Region	Number of Participants	Average Number of Hives per Beekeeper
I	Southern (1) Central (2) North-East (3)	8	1317
II	North-West (4)	6	620
III	Peace River (5)	5	818
	TOTAL	19	966

The study sample of 19 honey producers was further divided into the following three groups by size of operation:

Group	Region	Number of Participants	Average Number of Hives per Beekeeper
IV	Up to 600 Hives	8	357
V	601 to 1,000 Hives	5	845
VI	Over 1,000 Hives	6	1878
	TOTAL	19	966

Number of hives for both pollination and honey operations in the study sample was 36,349 for the 1998 honey production year, i.e., about 18 per cent of the total number of hives in the province. The largest honey producer operated 12,000 hives and the smallest about 125 hives during the 1998 honey production year.

SECTION II

METHOD OF ANALYSIS

The raw data obtained from 22 beekeepers across the province was reviewed for information gaps before entering into the computer for analysis. Individual analyses, provincial and group averages (by region and size of operation) were developed using the Paradox program.

HONEY PRODUCTION IN ALBERTA

Honey production in Alberta has widely fluctuated during the last several decades. Similarly, the number of beekeepers in the province has varied considerably since the seventies. It has ranged from a low of 725 beekeepers in 1997 to 2,000 in 1975 and 1976. Since 1985, the number of beekeepers has steadily declined from 1,700 to 725 in 1997, a decrease of over 57 percent. However, during the last four years, the number of beekeepers in Alberta has been around 725 and 750.

The number of honey producing colonies during the last two decades has also fluctuated considerably, i.e., ranging from 110,000 in 1970 to 205,000 in 1998. The number of colonies per beekeeper increased steadily from 1980 to 1987, i.e., from 160,000 to 193,000. However, in 1988, the number of colonies decreased by 22 percent to 150,000. Similarly, the number of beekeepers also declined by about 23 percent (from 1,480 to 1,140) in 1988. In 1989, the number of beekeepers further decreased by 25 percent to 855. Since 1994, the number of commercial beekeepers in the province has been around 750. The number of colonies per beekeeper has been increasing since 1994 reaching 175,000 in 1995 through 1997. In 1998, Alberta had a record 205,000 producing colonies owned and operated by 730 beekeepers (281 colonies per beekeeper). A historical summary of the number of beekeepers, colonies, colonies per apiary (beekeeper), production per colony and price of honey received by beekeepers in Alberta (1970 to 1998) is presented in Table 1.

TABLE 1:

HISTORICAL DATA ON HONEY PRODUCTION IN ALBERTA, 1970-1998

Year	Number of Beekeepers	Number of Colonies	Colonies Per Apiary	Production Per Colony (lbs.)	Price Per Pound (c)
1970	1,200	110,000	92	194	14.0
1971	1,200	115,000	96	196	20.0
1972	1,200	130,000	108	154	31.0
1973	1,300	145,000	112	150	46.0
1974	1,800	156,000	87	149	46.0
1975	2,000	158,000	79	128	39.9
1976	2,000	160,000	80	88	37.2
1977	1,800	5,000	92	130	43.1
1978	1,800	160,000	89	125	50.8
1979	1,700	150,000	88	150	57.2
1980	1,800	160,000	89	141	58.1
1981	1,700	170,000	100	116	64.4
1982	1,650	174,000	105	104	62.2
1983	1,610	172,000	107	146	59.9
1984	1,600	180,000	113	154	48.5
1985	1,700	181,000	106	102	56.3
1986	1,700	190,000	112	126	59.9
1987	1,480	193,000	130	132	41.7
1988	1,140	150,000	132	153	39.9
1989	855	143,500	168	120	49.0
1990	840	152,000	181	153	58.2
1991	830	147,000	177	143	57.8
1992	800	148,000	185	156	58.9
1993	761	148,000	194	160	68.5
1994	750	159,000	212	195	68.2
1995	750	175,000	233	122	83.3
1996	750	175,000	233	116	125.3
1997	725	175,000	241	135	110.2
1998	730	205,000	281	187	88.7

Source: Agriculture Statistics Yearbook, Statistics and Data Unit, Alberta Agriculture, Food and Rural Development, 1971 to 1998, Edmonton, Alberta

Total Value of Honey:

Total value of honey is based on:

- Bulk honey sales;
- Bulk honey inventory;
- Consumer pack sales;
- Consumer pack inventory ; and
- Other honey sales.

Total Value of Production:

In addition to total value of honey, total value of production includes:

- Wax sales;
- Pollen sales;
- Crop insurance receipts;
- Miscellaneous income (any program payments);
- Less honey purchase of resale; and
- Hive rental - pollination

The study participants were asked to provide actual sales and an estimate of expected price for any honey held in inventory and/or any other stock.

Variable Costs:

Most of the inputs used in honey production were purchased during the production year and recorded as such in the year-end statement. The study participants were asked to provide estimates for those costs for which actual records were not available, i.e., an inventory carried from last year. In 1998, the average hourly wage for hired labour was calculated at $10.50 per hour. Operating interest was the actual amount paid by the study participant. Operator's and family labour (unpaid labour) were valued at $10.50 and $7.50 per hour, respectively. The study participants were asked to provide estimates of hours spent on the honey operation by their family member(s) and themselves.

Capital Costs:

Capital costs include land rent/lease, building rent and forage access, bee equipment, and vehicles, etc. Capital interest was the actual amount paid by the study participants for capital purchases.

Cash Costs:

Cash costs represent out-of-pocket costs incurred during the production period and marketing of honey. It does not include costs associated with operator's and family labour and depreciation for buildings and equipment.

Total Production Costs:

Total production costs comprise of variable costs (B) and capital costs (C).

Management Indicators:

Management indicators presented at the bottom of various tables show gross margin (total value of production less cash costs), return to unpaid labour, investment and equity. These indicators provide profit margins and economic viability of honey production at the provincial level; by regions and size of operations.

SECTION III

HONEY PRODUCTION COSTS AND RETURNS IN ALBERTA

The results in Table 2 are based on data provided by 19 beekeepers across the province. In 1998, honey produced for sale by an average study participant was 192,280 pounds, of which 138,260 pounds (72%) were sold as bulk honey. Consumer pack sales and consumer pack inventory were 3,036 and 4,461 pounds, respectively. Other honey sales amounted to only 1,281 pounds per beekeeper in 1998. Honey held in inventory was 45,241 pounds (24%) from the 1998 honey production year at the time of data collection. Average yield per hive for the 19 study participants was estimated at 199 pounds. Average number of hives per study participant was 966. Average honey production per hive is slightly higher for this group of beekeepers compared to the provincial average of 187 pounds. Details on honey, wax and pollen sales and other income are given in Table 2.

Total value of honey sold by per average study participant (bulk sales, inventory, consumer pack sales, consumer pack inventory, and other honey sales) amounted to $164,519 in 1998. Average value per hive for 966 hives was $170 or $0.86 per pound. When wax/pollen/other sales; crop insurance receipts, miscellaneous receipts were included to the value of honey, then total value of production increased to $168,997 or $175 per hive ($0.88 per pound of honey produced) in 1998.

Variable Costs

Variable costs include all out-of-pocket costs and unpaid labour which amounted to $99,819 per average study participant in 1998. In terms of variable costs per hive, average amount was $103 per hive ($0.52 per pound). Because of the producers' interest in knowing their variable costs for each basic unit of production, these costs were broken into as much detail as possible. The most significant inputs which make up major portions of variable costs were supplies and miscellaneous expenses (beehive parts, drums, containers, advertising, insurance and operating supplies) followed by paid labour and benefits, unpaid labour, bee expenses (sugar, bee purchase, medicine, icing sugar), fuel and building/equipment repairs and maintenance.

Table 2 **Honey Production Costs and Returns, Alberta 1993**

			Total $	$/Hive	$/Lb.
(A)					
1. Bulk Honey Sales	138260.63 lbs		116,325.56	120.45	.60
2. Bulk Honey Inventory	45241.37 lbs		37,930.24	39.27	
3. Consumer Pack Sales	3035.95 lbs		4,489.21	4.65	
4. Consumer Pack Inventory	4460.71 lbs		4,517.38	4.68	
5. Other Honey Sales	1281.42 lbs		1,257.26	1.30	
6. Wax/Pollen/Other Sales	2826.14 lbs		6,396.33	6.62	
7. Crop Insurance Receipts			0.00	0.00	
8. Miscellaneous Receipts			34.74	.04	
9. Less: Honey Purchase for Resale			(1,953.79)	(2.02)	
VALUE OF PRODUCTION			**168,996.94**	**174.98**	**.88**
(B)					
1. Bee Purchases - Package Bees			8,011.53	8.30	
2. Bee Purchases - Queens			3,267.50	3.38	
3. Freight & Trucking			972.47	1.01	
4. Feed - Sugar			11,259.89	11.66	
5. Medicinal Sugar/Bee Repellent			2,889.68	2.99	
6. Product & Crop Insurance			1,377.67	1.43	
7. Fuel			5,149.08	5.33	
8. Repairs - Machine			3,932.42	4.07	
9. Repairs - Buildings & Improvements			1,077.06	1.12	
10. Utilities & Heating Fuel			3,203.79	3.32	
11. Custom Work & Machine Rental			785.05	.81	
12. Assoc. Dues, Prof'l Fees, Promotion & Travel			3,466.03	3.59	
13. Small Tools, Supplies & Miscellaneous Expenses			18,615.03	19.27	
14. Operating Interest			2,673.14	2.77	
15. Paid Labour & Benefits	1614.13 hours		16,135.30	16.71	
16. Unpaid Labour	1650.42 hours		17,003.53	17.61	
VARIABLE COSTS			**99,819.16**	**103.35**	**.52**
(C)					
1. Land Rent / Lease, Bldg. Rent & Forage Access			1,934.84	2.00	
2. Taxes, Licences & General Insurance			2,952.83	3.06	
3. Equipment & Building a) Depreciation			31,676.84	32.80	
b) Lease Payments			699.53	.72	
4. Paid Capital Interest			3,446.41	3.57	
TOTAL CAPITAL COSTS			**40,710.45**	**42.15**	**.21**
(D) **CASH COSTS**	(B+C-B16-C3a)		**91,849.25**	**95.10**	**.48**
(E) **TOTAL PRODUCTION COSTS**	(B+C)		**140,529.61**	**145.51**	**.73**
(F) **GROSS MARGIN**	(A-D)		**77,147.69**	**79.88**	**.40**
RETURN TO UNPAID LABOUR	(A-E+B16)		**45,470.85**	**47.08**	**.24**
RETURN TO INVESTMENT	(A-E+C4)	9.5 %	**31,913.73**	**33.04**	**.17**
RETURN TO EQUITY	(A-E)		**28,467.32**	**29.48**	**.15**

MANAGEMENT

Number of Hives	965.79
Average Yield per Hive (Lbs.)	199.09
Honey Produced (Lbs.)	192,280.07

The study participants were asked to estimate time spent by their family members and themselves in regards to the honey operation. The time spent by the operator was valued at $10.50 per hour and $7.50 per hour for a family member(s).

Capital Costs:

Capital costs (C) are compromised of land rent/lease building rent and forage access, depreciation for buildings, bee equipment and vehicles, lease payments and capital interest paid. Average total capital cost amounted to $40,710 or $42 per hive ($0.21 per pound of honey produced) per study participant in 1998.

Cash Costs:

Cash costs (D) include all out of pocket costs incurred during the honey production period. These costs amounted to $91,849 per average beekeeper in the study for the 1998 honey production. In terms of average cash costs per hive, the amount was $95 or $0.48 per pound of honey produced.

Total Production Costs:

Average total production cost in 1998 was estimated at $140,530 for an average honey operation with 966 hives. Average production cost per hive or per pound of honey produced was $146 or $0.73, respectively. Details on total production cost for an average study participant are presented in Table 2.

Management Indicators:

When cash costs (D) were deducted from the total value of honey production (A-D), average study participant showed a positive gross margin of $77,148 per beekeeping operation. Gross margin per hive was $82.89 and $0.40 per pound of honey produced.

Average return to unpaid labour in 1998 was estimated at $45,471 per study participant. In terms of return to unpaid labour per hive, it amounted to $47.08 or $0.24 per pound of honey produced per beekeeping operation in 1998.

Average return to investment and equity were also positive at $31,914 and $28,467, respectively. Return to investment and equity per hive were $33 ($0.17 per pound) and $29 (0.15 per pound) per average beekeeper.

Investment Costs:

Investment costs were divided into four categories, namely land, buildings, bee equipment (including machinery), and vehicles. The study participants were asked to provide market value of land, buildings, bee equipment, machinery and vehicles to estimate total investment and depreciation for an average beekeeping operation. Actual interest paid on capital was used to arrive at total capital cost which also included depreciation for buildings, bee equipment, and vehicles.

For the study sample, land associated with the beekeeping operation was about 6 acres, valued at $4,034 or $665 per acre. Building investment per study participant was estimated at $60,141 or $62 per hive. Bee equipment investment was $235,586 per average operation or $243 per hive. Machinery (automotive) investment was based on the percentage use of vehicles for the honey operation. This investment was estimated at $36,097 or $37 per hive in 1998. When all of the investment items were added together, total investment amounted to $334,542 per average beekeeping operation or $346 per hive. Details on land, buildings, bee equipment and machinery investment are presented in Table 3.

Table 3 **Honey Production Enterprise Investment, Alberta 1998**

INVESTMENT SUMMARY:		**Total $**	**$/Hive**
Land	6.07 acres	4,033.68	4.18
Buildings		60,141.46	62.27
Bee Equipment		234,269.95	242.57
Machinery		36,096.63	37.38
TOTAL INVESTMENT		**334,541.72**	**346.39**

INVESTMENT DETAIL:	Enterprise Value ($)	Age (Years)	Depreciation ($)
Land	**4,033.68**		
Honey House	33,824.42	14.21	1,691.22
Wintering Shed	2,315.79	1.16	115.79
Houses(25%)	7,329.14	18.57	366.46
Other Bldgs	16,672.11	10.51	833.61
Buildings Sub-Total	**60,141.46**		**3,007.07**
Hives	163,981.58	11.79	18,857.88
Pallets	4,084.21	6.58	469.68
Fork Lift	1,315.79	.21	105.26
Hive Feeders	4,125.26	7.84	474.41
Super Elevator	0.00	0.00	0.00
Uncapping Machines	5,828.95	11.05	466.32
Honey Extractor	9,557.89	11.95	764.63
Dryer/Heat Exchanger	1,036.84	1.63	82.95
Wax Spinner/Separator	1,505.26	9.84	120.42
Honey Tank & Pipe	3,593.16	12.58	413.21
Feed Tank	2,234.21	6.53	256.93
Storage Vessel	0.00	0.00	0.00
Boiler Furnace	1,060.53	7.89	84.84
Water System	0.00	0.00	0.00
Compressor	469.47	4.11	37.56
Pressure Washer	617.42	3.00	49.39
Fuel Tank	0.00	0.00	0.00
Scales	1,064.21	11.58	122.38
Barrels	1,489.53	3.37	171.30
Barrel Loader	0.00	0.00	0.00
Carts	787.37	9.93	90.55
Fencers / Shockers	4,059.37	4.68	466.83
Shop Tools	5,312.05	3.87	610.89
Staplers	496.79	3.58	57.13
Office Equipment	381.26	.74	30.50
Lawn Mower	1,439.47	5.05	115.16
Over-Wintering Insulation	6,318.42	3.63	726.62
Miscellaneous Equipment	13,510.89	9.51	1,211.67
Equipment Sub - Total	**234,269.95**		**25,786.51**
Trucks	32,045.79	10.29	2,563.66
Tractors	736.84	2.37	58.95
Other Mach.	3,314.00	7.24	147.44
Power Equipment Sub - Total	**36,096.63**		**2,770.05**
TOTAL INVESTMENT	**334,541.72**		**31,563.63**

SECTION IV

HONEY PRODUCTION COSTS AND RETURNS BY REGIONS

The study sample of 19 beekeepers was divided into three groups by regions, i.e., Southern, Central and Northeast regions (Group I); Northwest (Group II); and Peace (Group III). As the number of beekeepers participating in the study for regions 1 to 3 was small, these were combined into one group to preserve confidentiality of the data. Therefore, the number of beekeepers in Group I was eight (8). Group II, the Northwest region, had six (6) beekeepers and Group III, the Peace region, had five (5). Figure 1 shows the distribution of the study sample by region.

Group I (Southern, Central and Northeast Regions):

Results presented in Table 4 are based on the averages for eight study participants. Average size of the beekeeping operation was 1,317 hives. Yield per hive for this group was about 186 pounds. Average production for this group was 245,438 pounds of marketable honey. Total value of production including wax/pollen and miscellaneous receipts for this group amounted to $214,020 per average beekeeper or $162 per hive ($0.87 per pound).

Average variable costs for Group I participants were estimated at $136,694 per study participant and $104 per hive or $0.56 per pound of honey produced. Average capital costs for Group I participants amounted to $49,949 per operation, or $38 per hive ($0.20 per pound). Average total production cost for study participants in the Southern, Central and North East regions was estimated at $186,643 per beekeeping operation and $142 per hive or $0.76 per pound of honey produced in 1998.

Details on total value of production, variable costs, capital costs, cash costs and total production costs for Group I participants are given in Table 4. Average total investment for land, buildings, bee equipment, and machinery for this group of honey producers is presented in Table 5. Average total investment for honey producers in this group amounted to $399,662 per operation or $303 per hive during the 1998 honey production year.

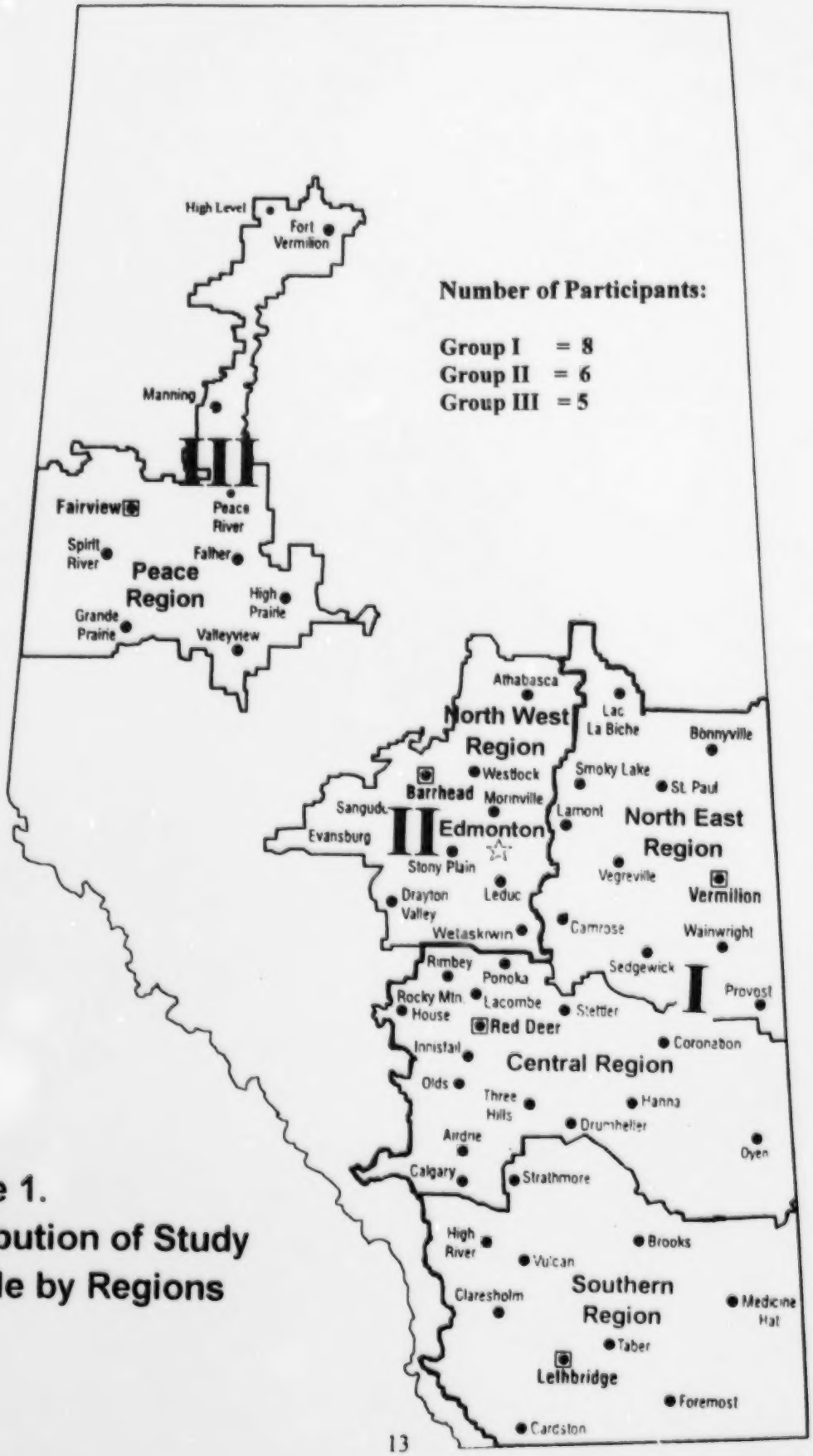


Figure 1.
Distribution of Study Sample by Regions

Table 4 **Honey Production Costs and Returns, Southern, Central and NE Regions 1998**

			Total $	$/Hive	$/Lb.
(A)					
1. Bulk Honey Sales	198167.88 lbs		162,793.47	123.56	.66
2. Bulk Honey Inventory	36052.88 lbs		29,868.90	22.67	
3. Consumer Pack Sales	4118.63 lbs		6,774.28	5.14	
4. Consumer Pack Inventory	4312.68 lbs		5,368.15	4.07	
5. Other Honey Sales	2785.88 lbs		2,785.88	2.11	
6. Wax/Pollen/Other Sales	4186.25 lbs		9,481.18	7.20	
7. Crop Insurance Receipts			0.00	0.00	
8. Miscellaneous Receipts			82.50	.06	
9. Less: Honey Purchase for Resale			(3,134.13)	(2.38)	
VALUE OF PRODUCTION			**214,020.24**	**162.44**	**.87**
(B)					
1. Bee Purchases - Package Bees			15,169.88	11.51	
2. Bee Purchases - Queens			2,550.94	1.94	
3. Freight & Trucking			966.25	.73	
4. Feed - Sugar			14,404.38	10.93	
5. Medicinal Sugar/Bee Repellent			4,705.60	3.57	
6. Product & Crop Insurance			1,597.13	1.21	
7. Fuel			7,497.71	5.69	
8. Repairs - Machine			4,897.45	3.72	
9. Repairs - Buildings & Improvements			777.63	.59	
10. Utilities & Heating Fuel			3,486.08	2.65	
11. Custom Work & Machine Rental			1,590.63	1.21	
12. Assoc. Dues, Prof'l Fees, Promotion & Travel			5,256.72	3.99	
13. Small Tools, Supplies & Miscellaneous Expenses			33,101.85	25.12	
14. Operating Interest			2,500.68	1.90	
15. Paid Labour & Benefits	1791.88 hours		19,679.38	14.94	
16. Unpaid Labour	1836.75 hours		18,511.88	14.05	
VARIABLE COSTS			**136,694.15**	**103.75**	**.56**
(C)					
1. Land Rent / Lease, Bldg. Rent & Forage Access			3,524.88	2.68	
2. Taxes, Licences & General Insurance			3,175.04	2.41	
3. Equipment & Building a) Depreciation			38,179.23	28.98	
b) Lease Payments			1,661.38	1.26	
4. Paid Capital Interest			3,408.25	2.59	
TOTAL CAPITAL COSTS			**49,948.77**	**37.91**	**.20**
(D) **CASH COSTS**	(B+C-B16-C3a)		**129,951.82**	**98.64**	**.53**
(E) **TOTAL PRODUCTION COSTS**	(B+C)		**186,642.92**	**141.66**	**.76**
(F) **GROSS MARGIN**	(A-D)		**84,068.42**	**63.81**	**.34**
RETURN TO UNPAID LABOUR	(A-E+B16)		**45,889.20**	**34.83**	**.19**
RETURN TO INVESTMENT	(A-E+C4)	7.7 %	**30,785.57**	**23.37**	**.13**
RETURN TO EQUITY	(A-E)		**27,377.32**	**20.78**	**.11**

MANAGEMENT

Number of Hives	1,317.50
Average Yield per Hive (Lbs.)	186.29
Honey Produced (Lbs.)	245,437.93

Table 5 **Honey Production Enterprise Investment, Southern, Central and NE Regions 1998**

INVESTMENT SUMMARY:		Total $	$/Hive
Land	4.85 acres	3,000.31	2.28
Buildings		62,327.50	47.31
Bee Equipment		286,278.75	217.29
Machinery		48,055.75	36.47
TOTAL INVESTMENT		**399,662.31**	**303.35**

INVESTMENT DETAIL:	Enterprise Value ($)	Age (Years)	Depreciation ($)
Land	**3,000.31**		
Honey House	28,937.50	14.63	1,446.88
Wintering Shed	0.00	0.00	0.00
Houses(25%)	8,953.13	23.59	447.66
Other Bldgs	24,436.88	8.87	1,221.84
Buildings Sub-Total	**62,327.50**		**3,116.38**
Hives	194,843.75	10.63	22,407.03
Pallets	6,756.25	6.25	776.97
Fork Lift	3,125.00	.50	250.00
Hive Feeders	5,176.25	4.63	595.27
Super Elevator	0.00	0.00	0.00
Uncapping Machines	5,312.50	7.75	425.00
Honey Extractor	16,312.50	9.63	1,305.00
Dryer/Heat Exchanger	2,312.50	2.38	185.00
Wax Spinner/Separator	1,575.00	7.50	126.00
Honey Tank & Pipe	4,318.75	12.25	496.66
Feed Tank	2,762.50	3.50	317.69
Storage Vessel	0.00	0.00	0.00
Boiler Furnace	1,818.75	2.50	145.50
Water System	0.00	0.00	0.00
Compressor	581.25	4.00	46.50
Pressure Washer	1,017.00	1.75	81.36
Fuel Tank	0.00	0.00	0.00
Scales	1,505.00	10.00	173.07
Barrels	1,750.00	3.00	201.25
Barrel Loader	0.00	0.00	0.00
Carts	1,018.75	8.00	117.16
Fencers / Shockers	75.00	.75	8.63
Shop Tools	5,900.00	4.13	678.50
Staplers	593.75	3.00	68.28
Office Equipment	230.50	.13	18.44
Lawn Mower	2,031.25	3.13	162.50
Over-Wintering Insulation	11,681.25	3.75	1,343.34
Miscellaneous Equipment	15,581.25	8.21	1,333.34
Equipment Sub - Total	**286,278.75**		**31,262.49**
Trucks	43,594.38	7.16	3,487.55
Tractors	0.00	0.00	0.00
Other Mach.	4,461.38	1.82	153.91
Power Equipment Sub - Total	**48,055.75**		**3,641.46**
TOTAL INVESTMENT	**399,662.31**		**38,020.32**

Group II (North-West Region):

Information presented in Table 6 is based on the averages of six (6) participants. On an average, the number of hives for this group was 620 with average yield being 254 pounds per hive. Amount of honey produced by an average participant in Group II was 157,729 pounds in 1998.

Average total value of production for this group was $139,290 per operation and $225 per hive or $0.88 per pound of honey produced. Variable costs for Group II participants in the North-West region amounted to $100 per hive or $0.39 per pound. When capital costs were added to variable costs, average total production costs were $147 per hive or $0.58 per pound of honey produced. Average return to investment was $82 per hive for this group. Average return to equity was $78 per hive. Details on costs and returns for Group II study participants are shown in Table 6.

Average total investment for land, buildings, bee equipment, and machinery (vehicles) for Group II study participants (North-West region) amounted to $246,067 per operation or $397 per hive. Details on investment and investment costs for this group are presented in Table 7.

Group III (Peace River Region):

Five (5) honey producers provided detailed information on their operations from the Peace River region. Group averages for these study participants resulted in 818 hives per honey. Average yield for producers in the Peace region was 182 pounds per hive. Average total value of honey for Group III participants amounted to $132,608 per beekeeping operation or $162 per hive ($0.89 per pound). When income from honey by-products was combined with the value of honey, average total value of production was estimated at $132,608 per operation or 162 per hive ($0.89 per pound).

Average variable costs for the five honey producers in the Peace Region amounted to $105 per hive ($0.58 per pound). Total production costs (cash costs, operator and family labour and capital costs) was almost $154 per hive or $0.85 per pound of honey produced in 1998. Average gross margin (total value of production less cash costs) was $67 per hive or $0.37 per pound of honey produced.

Table 6 **Honey Production Costs and Returns, North West Region 1998**

				Total $	$/Hive	$/Lb.
(A)						
1.	Bulk Honey Sales	84151.33	lbs	72,894.35	117.60	.46
2.	Bulk Honey Inventory	65252.17	lbs	56,123.90	90.55	
3.	Consumer Pack Sales	832.33	lbs	1,071.87	1.73	
4.	Consumer Pack Inventory	7317.00	lbs	5,970.00	9.63	
5.	Other Honey Sales	176.67	lbs	216.83	.35	
6.	Wax/Pollen/Other Sales	2207.19	lbs	5,021.18	8.10	
7.	Crop Insurance Receipts			0.00	0.00	
8.	Miscellaneous Receipts			0.00	0.00	
9.	Less: Honey Purchase for Resale			(2,008.17)	(3.24)	
	VALUE OF PRODUCTION			**139,289.96**	**224.72**	**.88**
(B)						
1.	Bee Purchases - Package Bees			666.67	1.08	
2.	Bee Purchases - Queens			3,636.50	5.87	
3.	Freight & Trucking			1,533.83	2.47	
4.	Feed - Sugar			7,974.49	12.87	
5.	Medicinal Sugar/Bee Repellent			1,369.67	2.21	
6.	Product & Crop Insurance			723.45	1.17	
7.	Fuel			2,944.13	4.75	
8.	Repairs - Machine			2,795.08	4.51	
9.	Repairs - Buildings & Improvements			861.17	1.39	
10.	Utilities & Heating Fuel			2,242.91	3.62	
11.	Custom Work & Machine Rental			133.33	.22	
12.	Assoc. Dues, Prof'l Fees, Promotion & Travel			1,818.64	2.93	
13.	Small Tools, Supplies & Miscellaneous Expenses			7,766.79	12.53	
14.	Operating Interest			1,579.37	2.55	
15.	Paid Labour & Benefits	1191.75	hours	10,758.54	17.36	
16.	Unpaid Labour	1456.00	hours	15,288.00	24.66	
	VARIABLE COSTS			**62,092.58**	**100.18**	**.39**
(C)						
1.	Land Rent / Lease, Bldg. Rent & Forage Access			498.00	.80	
2.	Taxes, Licences & General Insurance			2,940.91	4.74	
3.	Equipment & Building a) Depreciation			23,130.94	37.32	
	b) Lease Payments			0.00	0.00	
4.	Paid Capital Interest			2,189.12	3.53	
	TOTAL CAPITAL COSTS			**28,758.97**	**46.40**	**.18**
(D)	**CASH COSTS**	(B+C-B16-C3a)		**52,432.62**	**84.59**	**.33**
(E)	**TOTAL PRODUCTION COSTS**	(B+C)		**90,851.56**	**146.57**	**.58**
(F)	**GROSS MARGIN**	(A-D)		**86,857.34**	**140.13**	**.55**
	RETURN TO UNPAID LABOUR	(A-E+B16)		**63,726.41**	**102.81**	**.40**
	RETURN TO INVESTMENT	(A-E+C4)	20.6 %	**50,627.53**	**81.68**	**.32**
	RETURN TO EQUITY	(A-E)		**48,438.41**	**78.15**	**.31**

MANAGEMENT

Number of Hives	619.83
Average Yield per Hive (Lbs.)	254.47
Honey Produced (Lbs.)	157,729.50

Table 7 **Honey Production Enterprise Investment, North West Region 1998**

INVESTMENT SUMMARY:		**Total $**		**$/Hive**
Land	4.43 acres	3,262.50		5.26
Buildings		44,430.38		71.68
Bee Equipment		168,074.00		271.16
Machinery		30,300.00		48.88
TOTAL INVESTMENT		**246,066.88**		**396.99**
INVESTMENT DETAIL:		Enterprise Value ($)	Age (Years)	Depreciation ($)
Land		**3,262.50**		
Honey House		29,900.00	10.67	1,495.00
Wintering Shed		0.00	0.00	0.00
Houses(25%)		9,792.71	14.17	489.64
Other Bldgs		4,737.67	10.39	236.88
Buildings Sub-Total		**44,430.38**		**2,221.52**
Hives		126,808.33	6.50	14,582.96
Pallets		1,408.33	3.83	161.96
Fork Lift		0.00	0.00	0.00
Hive Feeders		1,386.67	8.83	159.47
Super Elevator		0.00	0.00	0.00
Uncapping Machines		7,583.33	13.67	606.67
Honey Extractor		3,833.33	13.67	306.67
Dryer/Heat Exchanger		200.00	2.00	16.00
Wax Spinner/Separator		1,250.00	6.17	100.00
Honey Tank & Pipe		2,250.00	9.83	258.75
Feed Tank		1,575.00	4.50	181.13
Storage Vessel		0.00	0.00	0.00
Boiler Furnace		433.33	13.83	34.67
Water System		0.00	0.00	0.00
Compressor		338.33	4.00	27.07
Pressure Washer		300.00	3.33	24.00
Fuel Tank		0.00	0.00	0.00
Scales		850.00	9.67	97.75
Barrels		567.00	1.17	65.20
Barrel Loader		0.00	0.00	0.00
Carts		566.67	7.95	65.17
Fencers / Shockers		656.00	1.50	75.44
Shop Tools		1,633.33	0.00	187.83
Staplers		276.67	2.50	31.82
Office Equipment		0.00	0.00	0.00
Lawn Mower		766.67	5.33	61.33
Over-Wintering Insulation		3,016.67	4.17	346.92
Miscellaneous Equipment		12,374.33	11.84	1,085.88
Equipment Sub - Total		**168,074.00**		**18,476.67**
Trucks		26,716.67	14.08	2,137.33
Tractors		1,666.67	1.83	133.33
Other Mach.		1,916.67	9.14	133.33
Power Equipment Sub - Total		**30,300.00**		**2,404.00**
TOTAL INVESTMENT		**246,066.88**		**23,102.19**

Return over investment and equity were positive by $14 and $8 per hive, respectively. Details on value of production, cash costs, operator and family labour costs, capital costs and management indicators are shown in Table 8.

Investment for land, buildings, bee equipment, machinery and vehicles for the five (5) study participants in the Peace River region amounted to $336,519 per beekeeping operation in 1998. Investment per hive for an average beekeeping operation in this region (Group III) was $411. Details on land, buildings, bee equipment and machinery investments for the beekeepers in the Peace River region are presented in Table 9.

Table 8 **Honey Production Costs and Returns, Peace Region 1998**

				Total $	$/Hive	$/Lb.
(A)						
1.	Bulk Honey Sales	107340.20	lbs	94,094.35	115.00	.63
2.	Bulk Honey Inventory	35930.00	lbs	28,996.00	35.44	
3.	Consumer Pack Sales	3948.00	lbs	4,933.90	6.03	
4.	Consumer Pack Inventory	1270.00	lbs	1,413.00	1.73	
5.	Other Honey Sales	200.00	lbs	60.00	.07	
6.	Wax/Pollen/Other Sales	1392.70	lbs	3,110.78	3.80	
7.	Crop Insurance Receipts			0.00	0.00	
8.	Miscellaneous Receipts			0.00	0.00	
9.	Less: Honey Purchase for Resale			0.00	0.00	
	VALUE OF PRODUCTION			**132,608.02**	**162.07**	**.89**
(B)						
1.	Bee Purchases - Package Bees			5,372.00	6.57	
2.	Bee Purchases - Queens			3,971.20	4.85	
3.	Freight & Trucking			308.80	.38	
4.	Feed - Sugar			10,171.20	12.43	
5.	Medicinal Sugar/Bee Repellent			1,808.20	2.21	
6.	Product & Crop Insurance			1,811.60	2.21	
7.	Fuel			4,037.20	4.93	
8.	Repairs - Machine			3,753.20	4.59	
9.	Repairs - Buildings & Improvements			1,815.20	2.22	
10.	Utilities & Heating Fuel			3,905.20	4.77	
11.	Custom Work & Machine Rental			278.20	.34	
12.	Assoc. Dues, Prof'l Fees, Promotion & Travel			2,577.80	3.15	
13.	Small Tools, Supplies & Miscellaneous Expenses			8,454.00	10.33	
14.	Operating Interest			4,261.60	5.21	
15.	Paid Labour & Benefits	1836.60	hours	16,916.88	20.68	
16.	Unpaid Labour	1585.60	hours	16,648.80	20.35	
	VARIABLE COSTS			**86,091.08**	**105.22**	**.58**
(C)						
1.	Land Rent / Lease, Bldg. Rent & Forage Access			1,115.00	1.36	
2.	Taxes, Licences & General Insurance			2,611.60	3.19	
3.	Equipment & Building a) Depreciation			31,528.12	38.53	
	b) Lease Payments			0.00	0.00	
4.	Paid Capital Interest			5,016.20	6.13	
	TOTAL CAPITAL COSTS			**40,270.91**	**49.22**	**.27**
(D)	**CASH COSTS**	(B+C-B16-C3a)		**78,185.09**	**95.56**	**.53**
(E)	**TOTAL PRODUCTION COSTS**	(B+C)		**126,362.00**	**154.44**	**.85**
(F)	**GROSS MARGIN**	(A-D)		**54,422.94**	**66.52**	**.37**
	RETURN TO UNPAID LABOUR	(A-E+B16)		**22,894.82**	**27.98**	**.15**
	RETURN TO INVESTMENT	(A-E+C4)	3.3 %	**11,262.22**	**13.76**	**.08**
	RETURN TO EQUITY	(A-E)		**6,246.02**	**7.63**	**.04**

MANAGEMENT

Number of Hives	818.20
Average Yield per Hive (Lbs.)	181.73
Honey Produced (Lbs.)	148,688.20

Table 9 **Honey Production Enterprise Investment, Peace Region 1998**

INVESTMENT SUMMARY:		**Total $**		**$/Hive**
Land	10.00 acres	6,612.50		8.08
Buildings		75,497.10		92.27
Bee Equipment		230,491.00		281.70
Machinery		23,918.00		29.23
TOTAL INVESTMENT		**336,518.60**		**411.29**
INVESTMENT DETAIL:		Enterprise Value ($)	Age (Years)	Depreciation ($)
Land		**6,612.50**		
Honey House		46,352.80	17.80	2,317.64
Wintering Shed		8,800.00	4.40	440.00
Houses(25%)		1,774.50	15.80	88.72
Other Bldgs		18,569.80	13.30	928.49
Buildings Sub-Total		**75,497.10**		**3,774.85**
Hives		159,210.00	20.00	18,309.15
Pallets		3,020.00	10.40	347.30
Fork Lift		0.00	0.00	0.00
Hive Feeders		5,730.00	11.80	658.95
Super Elevator		0.00	0.00	0.00
Uncapping Machines		4,550.00	13.20	364.00
Honey Extractor		5,620.00	13.60	449.60
Dryer/Heat Exchanger		0.00	0.00	0.00
Wax Spinner/Separator		1,700.00	18.00	136.00
Honey Tank & Pipe		4,044.00	16.40	465.06
Feed Tank		2,180.00	13.80	250.70
Storage Vessel		0.00	0.00	0.00
Boiler Furnace		600.00	9.40	48.00
Water System		0.00	0.00	0.00
Compressor		448.00	4.40	35.84
Pressure Washer		359.00	4.60	28.72
Fuel Tank		0.00	0.00	0.00
Scales		616.00	16.40	70.84
Barrels		2,179.80	6.60	250.68
Barrel Loader		0.00	0.00	0.00
Carts		682.00	15.40	78.43
Fencers / Shockers		14,518.40	14.80	1,669.62
Shop Tools		8,785.80	8.09	1,010.37
Staplers		605.80	5.80	69.67
Office Equipment		1,080.00	2.60	86.40
Lawn Mower		1,300.00	7.80	104.00
Over-Wintering Insulation		1,700.00	2.80	195.50
Miscellaneous Equipment		11,562.20	8.79	1,167.95
Equipment Sub - Total		**230,491.00**		**25,796.77**
Trucks		19,963.00	10.75	1,597.04
Tractors		800.00	6.80	64.00
Other Mach.		3,155.00	13.62	154.00
Power Equipment Sub - Total		**23,918.00**		**1,815.04**
TOTAL INVESTMENT		**336,518.60**		**31,386.67**

SECTION V

HONEY PRODUCTION COSTS AND RETURNS BY SIZE OF OPERATION

The study sample of 19 beekeepers was further divided into three groups by size of operation. The main objective of analyzing the data by size of operation was to study the economies of scale, i.e., whether the size of operation had any effect on net returns and overall production costs. Following are the three groups by size of operation:

Group	Size of Operation	Number of Participants	Average Number of Hives per Beekeeper
IV	Up to 600 Hives	8	357
V	601 to 1,000 Hives	5	845
VI	Over 1,000 Hives	6	1,878
	TOTAL	**19**	**966**

Group IV (Up to 600 Hives):

Table 10 presents the results for the study participants in Group IV, i.e., up to 600 hives. The number of hives per average study participant for this group was 357. Number of hives owned by this group of participants ranged from 125 to 559 hives. In 1998, average yield for this group was 227 pounds of honey per hive, about 28 pounds per hive higher than the study sample. Total value of honey (bulk honey sales, bulk honey inventory, consumer pack sales, consumer pack inventory, wax/pollen sales and other honey sales) amounted to $70,831 per operation ($198 per hive) or $0.87 per pound of honey produced.

Variable Costs:

Average variable costs for the smallest group of honey producers; i.e., under 600 hives, are presented in Table 10. These costs amounted to $119 per hive or $0.53 per pound of honey produced in 1998.

Average operator and family labour charges for this Group (IV) were over $40 per hive or $0.18 per pound of honey produced.

Table 10 **Honey Production Costs and Returns,**
Alberta By size of operation (up to 600 Hives) 1998

			Total $	$/Hive	$/Lb.
(A)					
1. Bulk Honey Sales	66850.00	lbs	56,510.23	158.13	.70
2. Bulk Honey Inventory	11432.00	lbs	9,836.80	27.53	
3. Consumer Pack Sales	2341.50	lbs	3,357.59	9.40	
4. Consumer Pack Inventory	406.25	lbs	550.63	1.54	
5. Other Honey Sales	125.00	lbs	156.25	.44	
6. Wax/Pollen/Other Sales	844.22	lbs	1,925.92	5.39	
7. Crop Insurance Receipts			0.00	0.00	
8. Miscellaneous Receipts			0.00	0.00	
9. Less: Honey Purchase for Resale			(1,506.13)	(4.21)	
VALUE OF PRODUCTION			**70,831.28**	**198.20**	**.87**
(B)					
1. Bee Purchases - Package Bees			500.00	1.40	
2. Bee Purchases - Queens			1,488.06	4.16	
3. Freight & Trucking			493.00	1.38	
4. Feed - Sugar			4,613.91	12.91	
5. Medicinal Sugar/Bee Repellent			806.51	2.26	
6. Product & Crop Insurance			827.84	2.32	
7. Fuel			2,788.64	7.80	
8. Repairs - Machine			2,916.59	8.16	
9. Repairs - Buildings & Improvements			582.76	1.63	
10. Utilities & Heating Fuel			2,127.94	5.95	
11. Custom Work & Machine Rental			36.88	.10	
12. Assoc. Dues, Prof'l Fees, Promotion & Travel			1,665.63	4.66	
13. Small Tools, Supplies & Miscellaneous Expenses			8,198.89	22.94	
14. Operating Interest			1,086.80	3.04	
15. Paid Labour & Benefits	555.31	hours	2,842.91	7.95	
16. Unpaid Labour	1119.38	hours	11,691.94	32.72	
VARIABLE COSTS			**42,668.29**	**119.39**	**.53**
(C)					
1. Land Rent / Lease, Bldg. Rent & Forage Access			395.75	1.11	
2. Taxes, Licences & General Insurance			1,613.80	4.52	
3. Equipment & Building a) Depreciation			12,753.96	35.69	
b) Lease Payments			0.00	0.00	
4. Paid Capital Interest			2,022.27	5.66	
TOTAL CAPITAL COSTS			**16,785.79**	**46.97**	**.21**
(D) CASH COSTS	**(B+C-B16-C3a)**		**35,008.18**	**97.96**	**.43**
(E) TOTAL PRODUCTION COSTS	**(B+C)**		**59,454.08**	**166.36**	**.73**
(F) GROSS MARGIN	**(A-D)**		**35,823.10**	**100.24**	**.44**
RETURN TO UNPAID LABOUR	**(A-E+B16)**		**23,069.14**	**64.55**	**.28**
RETURN TO INVESTMENT	**(A-E+C4)**	9.2 %	**13,399.48**	**37.49**	**.17**
RETURN TO EQUITY	**(A-E)**		**11,377.20**	**31.84**	**.14**

MANAGEMENT

Number of Hives	357.38
Average Yield per Hive (Lbs.)	227.09
Honey Produced (Lbs.)	81,154.75

The most significant costs for this group of beekeepers were operator and family labour at $33 per hive, followed by supplies and miscellaneous expenses and feed - sugar for bees.

Capital Costs:

Average land rent/lease, depreciation for buildings, bee equipment and vehicles, and capital interest paid by the eight (8) apiarists in Group IV amounted to $16,786 ($47 per hive) or $0.21 per pound of honey produced. Breakdown of capital costs is also shown in Table 10.

Total Production Costs:

Average total production costs per study participant in up to 600 hives group were estimated at $59,454 for a honey operation with 357 hives. Production costs per hive and per pound of honey produced was the highest for this group (among the three groups by size of operation) of beekeepers at $166 and $0.73, respectively.

Management Indicators:

Average return to value of production over cash costs for Group IV participants (up to 600 hives) was $98 per hive or $0.43 per pound of honey produced. Average return to unpaid labour was $65 per hive or $0.28 per pound of honey produced. Return to investment and equity were $38 and $32 per hive, respectively. Details on cash costs, operator and family labour, capital costs, and management indicators are given in Table 10.

Investment Costs:

Average total investment for honey producers in the up to 600 hives group was $145,116 per operation or $406 per hive, the highest among the three groups by size of operation. Bee equipment investment was estimated at $241 per hive, followed by buildings at $107, and machinery, including vehicles, at $48 per hive. Table 11 presents details on land, buildings, bee equipment, machinery and vehicles investment for Group IV in 1998.

Table 11 **Honey Production Enterprise Investment, Alberta By size of operation (up to 600 Hives) 1998**

INVESTMENT SUMMARY:		Total $	$/Hive
Land	5.56 acres	3,803.13	10.64
Buildings		38,153.94	106.76
Bee Equipment		86,169.75	241.12
Machinery		16,989.38	47.54
TOTAL INVESTMENT		**145,116.19**	**406.06**

INVESTMENT DETAIL:	Enterprise Value ($)	Age (Years)	Depreciation ($)
Land	**3,803.13**		
Honey House	23,208.00	15.13	1,160.40
Wintering Shed	2,500.00	2.50	125.00
Houses(25%)	4,818.44	16.50	240.92
Other Bldgs	7,627.50	10.99	381.38
Buildings Sub-Total	**38,153.94**		**1,907.70**
Hives	57,856.25	8.25	6,653.47
Pallets	837.50	4.38	96.31
Fork Lift	0.00	0.00	0.00
Hive Feeders	2,960.00	7.25	340.40
Super Elevator	0.00	0.00	0.00
Uncapping Machines	2,906.25	14.13	232.50
Honey Extractor	3,337.50	16.25	267.00
Dryer/Heat Exchanger	0.00	0.00	0.00
Wax Spinner/Separator	462.50	10.38	37.00
Honey Tank & Pipe	1,971.25	14.25	226.69
Feed Tank	1,550.00	5.63	178.25
Storage Vessel	0.00	0.00	0.00
Boiler Furnace	662.50	12.50	53.00
Water System	0.00	0.00	0.00
Compressor	517.50	3.50	41.40
Pressure Washer	93.75	.63	7.50
Fuel Tank	0.00	0.00	0.00
Scales	414.38	12.50	47.65
Barrels	757.75	4.88	87.14
Barrel Loader	0.00	0.00	0.00
Carts	426.25	13.38	49.02
Fencers / Shockers	466.00	4.75	53.59
Shop Tools	3,400.00	3.63	391.00
Staplers	348.63	2.88	40.09
Office Equipment	300.00	1.50	24.00
Lawn Mower	807.50	4.38	64.60
Over-Wintering Insulation	1,759.38	2.25	202.33
Miscellaneous Equipment	4,334.88	12.25	382.57
Equipment Sub - Total	**86,169.75**		**9,475.52**
Trucks	16,283.13	14.26	1,302.65
Tractors	0.00	0.00	0.00
Other Mach.	706.25	10.38	30.00
Power Equipment Sub - Total	**16,989.38**		**1,332.65**
TOTAL INVESTMENT	**145,116.19**		**12,715.87**

Group V (601 to 1,000 Hives):

Average number of hives for this group (5 beekeepers) was 845 hives, with an average production of 191 pounds per hive. The number of hives owned by this group of participants ranged from 600 to 992. Section A in Table 12 presents total value of production (bulk honey sales, consumer pack sales, honey held in inventory, wax/pollen sales and miscellaneous receipts, and other honey sales), estimated at $144,027 per beekeeping operation or 171 per hive ($0.89 per pound).

Variable Costs:

Average variable costs for Group V (601 to 1,000 hives) of beekeepers were estimated at $87,097 per beekeeping operation or $103 per hive ($0.54 per pound) during the 1998 honey production year. Average operator and family labour charges were $21 per hive or $0.11 per pound of honey produced. Cash costs (D) for this group amounted to $78,286 per operation or $93 per hive or $0.49 per pound of honey produced (Table 12).

Capital Costs:

Capital costs for Group V honey producers (601 to 1,000 hives) were estimated at $37,509 per operation or $44 per hive or $0.23 per pound of honey produced. Capital interest paid by this group was about $6 per hive during the 1998 production year.

Total Production Costs:

Average total production costs (variable costs including operator and family labour, and capital costs) for honey producers in this size group, were $124,606 per average beekeeping operation. In terms of per hive and per pound of honey produced, average production cost for this group was $148 and $0.77, respectively.

Table 12 **Honey Production Costs and Returns,**
Alberta By size of operation (600 - 1000 Hives) 1998

				Total $	$/Hive	$/Lb.
(A)						
	1. Bulk Honey Sales	93951.80	lbs	82,120.95	97.23	.51
	2. Bulk Honey Inventory	43636.00	lbs	35,155.50	41.62	
	3. Consumer Pack Sales	7239.80	lbs	11,053.85	13.09	
	4. Consumer Pack Inventory	15950.00	lbs	15,785.00	18.69	
	5. Other Honey Sales	212.00	lbs	70.20	.08	
	6. Wax/Pollen/Other Sales	1373.48	lbs	3,404.70	4.03	
	7. Crop Insurance Receipts			0.00	0.00	
	8. Miscellaneous Receipts			132.00	.16	
	9. Less: Honey Purchase for Resale			(3,694.60)	(4.37)	
	VALUE OF PRODUCTION			**144,027.60**	**170.53**	**.89**
(B)						
	1. Bee Purchases - Package Bees			4,693.00	5.56	
	2. Bee Purchases - Queens			2,825.60	3.35	
	3. Freight & Trucking			285.40	.34	
	4. Feed - Sugar			7,398.33	8.76	
	5. Medicinal Sugar/Bee Repellent			2,039.96	2.42	
	6. Product & Crop Insurance			1,105.80	1.31	
	7. Fuel			5,087.86	6.02	
	8. Repairs - Machine			3,401.27	4.03	
	9. Repairs - Buildings & Improvements			1,132.81	1.34	
	10. Utilities & Heating Fuel			3,474.56	4.11	
	11. Custom Work & Machine Rental			2,729.00	3.23	
	12. Assoc. Dues, Profl Fees, Promotion & Travel			2,544.71	3.01	
	13. Small Tools, Supplies & Miscellaneous Expenses			11,182.48	13.24	
	14. Operating Interest			4,237.97	5.02	
	15. Paid Labour & Benefits	1745.00	hours	16,944.72	20.06	
	16. Unpaid Labour	1715.60	hours	18,013.80	21.33	
	VARIABLE COSTS			**87,097.26**	**103.12**	**.54**
(C)						
	1. Land Rent / Lease, Bldg. Rent & Forage Access			949.00	1.12	
	2. Taxes, Licences & General Insurance			3,334.48	3.95	
	3. Equipment & Building a) Depreciation			28,305.92	33.51	
	b) Lease Payments			0.00	0.00	
	4. Paid Capital Interest			4,919.31	5.82	
	TOTAL CAPITAL COSTS			**37,508.71**	**44.41**	**.23**
(D)	**CASH COSTS**	(B+C-B16-C3a)		**78,286.25**	**92.69**	**.49**
(E)	**TOTAL PRODUCTION COSTS**	(B+C)		**124,605.97**	**147.53**	**.77**
(F)	**GROSS MARGIN**	(A-D)		**65,741.35**	**77.84**	**.41**
	RETURN TO UNPAID LABOUR	(A-E+B16)		**37,435.43**	**44.32**	**.23**
	RETURN TO INVESTMENT	(A-E+C4)	7.7 %	**24,340.93**	**28.82**	**.15**
	RETURN TO EQUITY	(A-E)		**19,421.63**	**23.00**	**.12**

MANAGEMENT

Number of Hives	844.60
Average Yield per Hive (Lbs.)	190.61
Honey Produced (Lbs.)	160,989.60

Management Indicators:

Gross margin (value of production - cash costs) for Group V participants (601 to 1,000 hives) was $78 per hive or $0.41 per pound of honey produced. Return to investment and equity were positive at $29 and $23 per hive, respectively. Details on total value of production, costs and returns are given in Table 12.

Investment Costs:

Average total investment for the study participants in Group V (600 to 1,000 hives) was 315,436 per operation or $373 per hive. Land area associated with the honey operation for this group was over 9 acres, valued at $6,283 or $653 per acre ($7 per hive). Market value for buildings was estimated at $82,361 per average honey operation or $98 per hive in Group V (Table 13). Bee equipment investment for this group was estimated at $197,627 per operation or $234 per hive. Average investment for vehicles was $29,165 per operation or $35 per hive. Details on land, buildings, bee equipment, and machinery (vehicles) investment are presented in Table 13.

Group VI (Over 1,000 Hives):

Over 75 percent of the honey produced by this group was sold as bulk honey and the remainder was held in inventory. Total value of honey for Group VI participants (over 1,000 hives) was $306,942 or $163 per hive. Average value per pound of honey produced was $0.84 for this group. When receipts from wax/pollen/other sales, crop insurance and miscellaneous sales were included with value of honey, total value of production increased to $320,692 or $171 per hive ($0.87 per pound). The size of beekeeping operations for participants in this group ranged from 1300 to 3200 hives, with an average of 1,878 per operation. Average yield per hive for this group was 195 pounds. Details on honey sales and other income are presented in Table 14.

Table 13 **Honey Production Enterprise Investment, Alberta By size of operation (600 - 1000 Hives) 1998**

INVESTMENT SUMMARY:		Total $	$/Hive
Land	9.62 acres	6,283.00	7.44
Buildings		82,361.25	97.52
Bee Equipment		197,627.00	233.99
Machinery		29,165.00	34.53
TOTAL INVESTMENT		**315,436.25**	**373.47**

INVESTMENT DETAIL:	Enterprise Value ($)	Age (Years)	Depreciation ($)
Land	**6,283.00**		
Honey House	50,000.00	13.20	2,500.00
Wintering Shed	4,800.00	.40	240.00
Houses(25%)	9,741.25	17.75	487.06
Other Bldgs	17,820.00	13.30	891.00
Buildings Sub-Total	**82,361.25**		**4,118.06**
Hives	140,850.00	21.60	16,197.75
Pallets	3,320.00	10.00	381.80
Fork Lift	0.00	0.00	0.00
Hive Feeders	2,900.00	11.80	333.50
Super Elevator	0.00	0.00	0.00
Uncapping Machines	9,800.00	11.00	784.00
Honey Extractor	3,700.00	11.00	296.00
Dryer/Heat Exchanger	0.00	0.00	0.00
Wax Spinner/Separator	1,480.00	11.40	118.40
Honey Tank & Pipe	3,900.00	11.40	448.50
Feed Tank	800.00	9.00	92.00
Storage Vessel	0.00	0.00	0.00
Boiler Furnace	200.00	4.40	16.00
Water System	0.00	0.00	0.00
Compressor	380.00	5.40	30.40
Pressure Washer	559.00	6.40	44.72
Fuel Tank	0.00	0.00	0.00
Scales	496.00	14.40	57.04
Barrels	2,239.80	1.80	257.58
Barrel Loader	0.00	0.00	0.00
Carts	720.00	11.94	82.80
Fencers / Shockers	250.00	9.00	28.75
Shop Tools	4,600.00	6.00	529.00
Staplers	630.00	5.20	72.45
Office Equipment	0.00	0.00	0.00
Lawn Mower	1,228.00	9.40	98.24
Over-Wintering Insulation	4,895.00	5.20	562.92
Miscellaneous Equipment	14,679.20	11.39	1,387.81
Equipment Sub - Total	**197,627.00**		**21,819.66**
Trucks	24,920.00	11.21	1,993.60
Tractors	800.00	6.80	64.00
Other Mach.	3,445.00	8.60	195.60
Power Equipment Sub - Total	**29,165.00**		**2,253.20**
TOTAL INVESTMENT	**315,436.25**		**28,190.92**

Table 14 **Honey Production Costs and Returns,**
Alberta By size of operation (over 1000 Hives) 1998

			Total $	$/Hive	$/Lb.
(A)					
1. Bulk Honey Sales	270398.83 lbs		224,583.18	119.59	.61
2. Bulk Honey Inventory	91658.33 lbs		77,700.45	41.37	
3. Consumer Pack Sales	458.67 lbs		527.50	.28	
4. Consumer Pack Inventory	292.23 lbs		416.70	.22	
5. Other Honey Sales	3714.50 lbs		3,714.50	1.98	
6. Wax/Pollen/Other Sales	6679.25 lbs		14,849.92	7.91	
7. Crop Insurance Receipts			0.00	0.00	
8. Miscellaneous Receipts			0.00	0.00	
9. Less: Honey Purchase for Resale			(1,100.00)	(.59)	
VALUE OF PRODUCTION			**320,692.26**	**170.76**	**.87**
(B)					
1. Bee Purchases - Package Bees			20,792.33	11.07	
2. Bee Purchases - Queens			6,008.33	3.20	
3. Freight & Trucking			2,184.33	1.16	
4. Feed - Sugar			23,339.17	12.43	
5. Medicinal Sugar/Bee Repellent			6,375.33	3.39	
6. Product & Crop Insurance			2,337.33	1.24	
7. Fuel			8,347.33	4.44	
8. Repairs - Machine			5,729.50	3.05	
9. Repairs - Buildings & Improvements			1,689.67	.90	
10. Utilities & Heating Fuel			4,412.62	2.35	
11. Custom Work & Machine Rental			162.67	.09	
12. Assoc. Dues, Prof'l Fees, Promotion & Travel			6,634.33	3.53	
13. Small Tools, Supplies & Miscellaneous Expenses			38,697.00	20.61	
14. Operating Interest			3,484.25	1.86	
15. Paid Labour & Benefits	2916.83 hours		33,183.97	17.67	
16. Unpaid Labour	2304.17 hours		23,243.75	12.38	
VARIABLE COSTS			**186,621.91**	**99.37**	**.51**
(C)					
1. Land Rent / Lease, Bldg. Rent & Forage Access			4,808.50	2.56	
2. Taxes, Licences & General Insurance			4,420.17	2.35	
3. Equipment & Building a) Depreciation			59,716.45	31.80	
b) Lease Payments			2,215.17	1.18	
4. Paid Capital Interest			4,117.83	2.19	
TOTAL CAPITAL COSTS			**75,278.12**	**40.08**	**.21**
(D) CASH COSTS	**(B+C-B16-C3a)**		**178,939.83**	**95.28**	**.49**
(E) TOTAL PRODUCTION COSTS	**(B+C)**		**261,900.03**	**139.46**	**.71**
(F) GROSS MARGIN	**(A-D)**		**141,752.43**	**75.48**	**.39**
RETURN TO UNPAID LABOUR	**(A-E+B16)**		**82,035.98**	**43.68**	**.22**
RETURN TO INVESTMENT	**(A-E+C4)**	10.4 %	**62,910.06**	**33.50**	**.17**
RETURN TO EQUITY	**(A-E)**		**58,792.23**	**31.31**	**.16**

MANAGEMENT

Number of Hives	1,878.00
Average Yield per Hive (Lbs.)	195.17
Honey Produced (Lbs.)	366,522.57

Variable Costs:

Average variable costs for the largest group of honey producers (over 1,000 hives) were estimated at $99 per hive or $0.51 per pound of honey produced. The most significant cash cost items for this group were supplies and miscellaneous expenses, followed by hired labour, sugar, and bee purchase (queens) expenses.

Operator and family labour amounted to $12 per hive for this group. When operator and family labour costs were taken out from the variable costs, cash cost per average apiarist in this group amounted to $95 per hive or $0.49 per pound of honey produced.

Capital Costs:

Capital costs (land rent/lease, depreciation for buildings, bee equipment, vehicles and capital interest paid) for Group VI participants (over 1,000 hives) were calculated to be $75,278 per operation or $40 per hive ($0.21 per pound of honey produced). This group of participants had the lowest capital interest paid, at about $2 per hive among the three groups analyzed by the size of beekeeping operation.

Total Production Costs:

Average total production costs for the largest group of honey producers (Group VI - over 1,000 hives) amounted to $139 per hive for a 1,878 hive operation. In terms of per pound of honey produced, cost of production was $0.71 in 1998. Cash costs for an average honey operation in this group were about 70 per cent of the total production costs. Labour cost (operator-unpaid) was 9 percent of the total production costs and the balance (21 percent) were capital costs.

Management Indicators:

Average gross margin, based on total value of production was $75 per hive for the Group VI participants, or $0.39 per pound of honey produced. Return to investment was positive at $33 and equity by $31 per hive. Details on cash costs, operator and family labour, capital costs and management indicators are presented in Table 14.

Investment Costs:

Investment and investment costs for the largest group of honey producers (over 1,000 hives) are shown in Table 18. Land area associated with the beekeeping operations was about 4 acres, valued at $2,468 or $649 per acre. Average building investment amounted to $70,942 or $38 per hive. Investment in bee equipment was $246 per hive. Investment in vehicles was $67,349 per operation or $36 per hive. Total investment for Group VI participants amounted to $603,030 or $321 per hive. Details on all investment items are presented in Table 15.

Table 15 **Honey Production Enterprise Investment, Alberta By size of operation (over 1000 Hives) 1998**

INVESTMENT SUMMARY:		**Total $**	**$/Hive**
Land	3.80 acres	2,466.67	1.31
Buildings		70,941.67	37.78
Bee Equipment		462,272.67	246.15
Machinery		67,349.33	35.86
TOTAL INVESTMENT		**603,030.33**	**321.10**

INVESTMENT DETAIL:	Enterprise Value ($)	Age (Years)	Depreciation ($)
Land	**2,466.67**		
Honey House	34,500.00	13.83	1,725.00
Wintering Shed	0.00	0.00	0.00
Houses(25%)	8,666.67	22.00	433.33
Other Bldgs	27,775.00	7.55	1,388.75
Buildings Sub-Total	**70,941.67**		**3,547.08**
Hives	324,758.33	8.33	37,347.21
Pallets	9,050.00	6.67	1,040.75
Fork Lift	4,166.67	.67	333.33
Hive Feeders	6,700.00	5.33	770.50
Super Elevator	0.00	0.00	0.00
Uncapping Machines	6,416.67	7.00	513.33
Honey Extractor	22,733.33	7.00	1,818.67
Dryer/Heat Exchanger	3,283.33	5.17	262.67
Wax Spinner/Separator	2,916.67	7.83	233.33
Honey Tank & Pipe	5,500.00	11.33	632.50
Feed Tank	4,341.67	5.67	499.29
Storage Vessel	0.00	0.00	0.00
Boiler Furnace	2,308.33	4.67	184.67
Water System	0.00	0.00	0.00
Compressor	480.00	3.83	38.40
Pressure Washer	1,364.33	3.33	109.15
Fuel Tank	0.00	0.00	0.00
Scales	2,404.17	8.00	276.48
Barrels	1,840.00	2.67	211.60
Barrel Loader	0.00	0.00	0.00
Carts	1,325.00	3.67	152.38
Fencers / Shockers	12,025.00	1.00	1,382.88
Shop Tools	8,454.83	2.41	972.31
Staplers	583.33	3.17	67.08
Office Equipment	807.33	.33	64.59
Lawn Mower	2,458.33	2.33	196.67
Over-Wintering Insulation	13,583.33	4.17	1,562.08
Miscellaneous Equipment	24,772.00	4.29	2,170.36
Equipment Sub - Total	**462,272.67**		**50,840.22**
Trucks	59,000.83	4.23	4,720.07
Tractors	1,666.67	1.83	133.33
Other Mach.	6,681.83	1.92	263.88
Power Equipment Sub - Total	**67,349.33**		**5,117.28**
TOTAL INVESTMENT	**603,030.33**		**59,504.58**

SECTION VI

COSTS AND RETURNS FOR POLLINATING HIVES

Honey bees have been used for pollinating crops to improve yield and seed production for centuries. In Alberta, commercial use of honey bees to pollinate crops started five or six years ago with the introduction of transgenic canola. Other crops for which bees have been used for pollination are borage, alfalfa and clover, etc. Over the last few years, the number of pollinating hives has quadrupled, i.e., from about 20,000 hives in 1996 to over 80,000 hives in 1998. The number of pollinating hives continues to increase as the area under transgenic canola and other crops expands.

Three (3) beekeepers who rented their hives for pollination purposes provided detailed information on their operations for the 1998 production year. These three beekeepers were in addition to the nineteen beekeepers who were primarily involved in honey production. Before we discuss costs and returns data for this group of beekeepers, readers or users of this report, please note that almost 74 percent of the income for this group was generated from renting bee hives for pollination purposes. Balance of the income was received from honey sales, wax and pollen and miscellaneous receipts.

The total number of hives for the pollination group of beekeepers was 18,000. Average yield for honey production was over 47 pounds per hive in 1998. Average honey production per operation for this group was 283,556 pounds per beekeeping operation. Almost 96 percent of the honey produced was sold as bulk honey and remainder in consumer pack sales and kept as consumer pack inventory. Average wax sales amounted to $10,000 per operation.

Average honey sales (bulk, consumer pack sales and inventory, wax/pollen sales and miscellaneous receipts) for this group amounted to $258,474 for a 6,000 bee hive operation, or $43.08 per hive ($0.91 per pound of honey produced). When hive rental income for pollination was combined with honey sales, average value of production increased to $893,920 per operation. In terms of income per hive, it was estimated at $149 for the 1998 honey production year.

Variable Costs:

Average variable costs for the pollination group of beekeepers were estimated at $509,417 per operation of 6,000 hives or $85 per hive. Paid labour and benefits was the leading expense item, followed by expenses for small tools, supplies and miscellaneous expense. Other notable expenses for this group were package bees purchases and feed-sugar..

Capital Costs:

Average capital costs for the three beekeepers in the pollination group were estimated at $180,238 per operation or $30 per hive. The most significant cost item for this group was equipment and building depreciation at $23 per hive.

Cash Costs:

Average cash costs for the 1998 production year amounted to $523,042 per operation or $87 per hive for the pollination beekeepers group. Cash costs as mentioned earlier represent costs that are out-of-pocket expenses incurred during the production period. These costs do not include expenses for unpaid labour and equipment and building depreciation.

Total Production Costs:

Average total production costs for the pollination beekeepers group were calculated at $689,656 per operation. In terms of total production costs per hive, it was $115 for an average pollination operation. Total production costs were comprised of over 74 percent variable costs and about 26 percent capital costs.

Management Indicators:

Average gross margin for the pollination group of beekeepers was $370,878 per operation or $62 per hive. Return to unpaid labour for this group was $235,102 per operation ($39 per hive). Average return to investment and equity were $37 and $34 per hive, respectively.

Details on value of production, variable costs, capital costs, total production costs, gross margin, return to unpaid labour, investment and equity are presented in Table 16.

Table 16 **Pollination Production Costs and Returns, Alberta 1998**

				Total $	$/Hive
(A)					
1.	Bulk Honey Sales	271844.48	lbs	227,762.54	37.96
2.	Bulk Honey Inventory	0.00	lbs	0.00	0.00
3.	Consumer Pack Sales	6711.67	lbs	14,711.67	2.45
4.	Consumer Pack Inventory	5000.00	lbs	6,000.00	1.00
5.	Other Honey Sales	0.00	lbs	0.00	0.00
6.	Wax/Pollen/Other Sales	5000.00	lbs	10,000.00	1.67
7.	Crop Insurance Receipts			0.00	0.00
8.	Miscellaneous Receipts			22,646.13	3.77
9.	Less: Honey Purchase for Resale			0.00	0.00
10.	Hive Rental - Pollination			612,800.00	109.43
	VALUE OF PRODUCTION			**893,920.34**	**148.99**
(B)					
1.	Bee Purchases - Package Bees			71,026.67	11.84
2.	Bee Purchases - Queens			20,391.33	3.40
3.	Freight & Trucking			6,752.00	1.13
4.	Feed - Sugar			70,957.67	11.83
5.	Medicinal Sugar/Bee Repellent			23,231.48	3.87
6.	Product & Crop Insurance			0.00	0.00
7.	Fuel			11,679.00	1.95
8.	Repairs - Machine			9,189.00	1.53
9.	Repairs - Buildings & Improvements			1,842.67	.31
10.	Utilities & Heating Fuel			15,735.90	2.62
11.	Custom Work & Machine Rental			1,000.00	.17
12.	Assoc. Dues, Prof'l Fees, Promotion & Travel			7,593.00	1.27
13.	Small Tools, Supplies & Miscellaneous Expenses			79,371.15	13.23
14.	Operating Interest			4,126.67	.69
15.	Paid Labour & Benefits	14511.00	hours	155,683.97	25.95
16.	Unpaid Labour	2936.84	hours	30,836.86	5.14
	VARIABLE COSTS			**509,417.36**	**84.90**
(C)					
1.	Land Rent / Lease, Bldg. Rent & Forage Access			8,133.33	1.36
2.	Taxes, Licences & General Insurance			16,539.33	2.76
3.	Equipment & Building a) Depreciation			135,776.30	22.63
	b) Lease Payments			0.00	0.00
4.	Paid Capital Interest			19,789.31	3.30
	TOTAL CAPITAL COSTS			**180,238.28**	**30.04**
(D)	**CASH COSTS**	(B+C-B16-C3a)		**523,042.48**	**87.17**
(E)	**TOTAL PRODUCTION COSTS**	(B+C)		**689,655.63**	**114.94**
(F)	**GROSS MARGIN**	(A-D)		**370,877.86**	**61.81**
	RETURN TO UNPAID LABOUR	(A-E+B16)		**235,101.56**	**39.18**
	RETURN TO INVESTMENT	(A-E+C4)	15.8 %	**224,054.02**	**37.34**
	RETURN TO EQUITY	(A-E)		**204,264.70**	**34.04**

MANAGEMENT

Number of Hives	6000
Average Yield per Hive (Lbs.)	47.26
Honey Produced (Lbs.)	283,556.15

Investment Costs:

Investment in land, buildings, bee equipment and machinery (vehicles) for the pollination group of beekeepers was estimated at $1,420,668 per operation in 1998. The most significant cost item for this group was also bee equipment at $161 per hive, followed by buildings at $54 per hive and machinery (vehicles) at $22 per hive. Table 17 presents details on investment for the pollination group.

Table 17 Pollination Production Enterprise Investment, Alberta 1998

INVESTMENT SUMMARY:		Total $	$/Hive
Land	8.67 acres	5,366.67	.89
Buildings		321,283.33	53.55
Bee Equipment		964,515.00	160.75
Machinery		129,503.33	21.58
TOTAL INVESTMENT		**1,420,668.33**	**236.78**

INVESTMENT DETAIL:	Enterprise Value ($)	Age (Years)	Depreciation ($)
Land	**5,366.67**		
Honey House	165,000.00	20.00	8,250.00
Wintering Shed	40,000.00	1.00	2,000.00
Houses(25%)	15,000.00	7.67	750.00
Other Bldgs	101,283.33	5.30	5,064.17
Buildings Sub-Total	**321,283.33**		**16,064.17**
Hives	805,333.33	5.00	92,613.33
Pallets	46,666.67	3.33	5,366.67
Fork Lift	0.00	0.00	0.00
Hive Feeders	9,000.00	1.67	1,035.00
Super Elevator	0.00	0.00	0.00
Uncapping Machines	2,333.33	4.00	186.67
Honey Extractor	4,933.33	14.67	394.67
Dryer/Heat Exchanger	1,000.00	4.00	80.00
Wax Spinner/Separator	3,000.00	4.00	240.00
Honey Tank & Pipe	2,833.33	17.33	325.83
Feed Tank	4,000.00	6.33	460.00
Storage Vessel	0.00	0.00	0.00
Boiler Furnace	1,000.00	9.00	80.00
Water System	0.00	0.00	0.00
Compressor	2,050.00	12.67	164.00
Pressure Washer	1,631.67	5.33	130.53
Fuel Tank	0.00	0.00	0.00
Scales	3,566.67	12.33	410.17
Barrels	7,333.33	4.33	843.33
Barrel Loader	0.00	0.00	0.00
Carts	766.67	10.00	88.17
Fencers / Shockers	0.00	0.00	0.00
Shop Tools	13,333.33	3.33	1,533.33
Staplers	566.67	2.33	65.17
Office Equipment	0.00	0.00	0.00
Lawn Mower	2,166.67	5.67	173.33
Over-Wintering Insulation	5,333.33	1.67	613.33
Miscellaneous Equipment	47,666.67	11.88	4,548.33
Equipment Sub - Total	**964,515.00**		**109,351.87**
Trucks	123,000.00	6.93	9,840.00
Tractors	0.00	0.00	0.00
Other Mach.	6,503.33	10.51	520.27
Power Equipment Sub - Total	**129,503.33**		**10,360.27**
TOTAL INVESTMENT	**1,420,668.33**		**135,776.30**

SECTION VII

SUMMARY

This section provides a summary of the value of production (bulk honey sales and inventory, consumer pack sales and inventory, and any other honey sales, receipts from wax/pollen, crop insurance receipts, and miscellaneous income), cash costs, operator and family labour, capital costs and management indicators for the study sample of 19 beekeepers across the province for the 1998 honey crop. A gist of similar information is also presented for the various groups by region and size of operation in Table 18.

Average yield per hive for the study sample was 199 pounds during the 1998 production year. This number is slightly higher than the provincial average which was estimated at 187 pounds per hive. When yield per hive was compared among the groups by region, it ranged from 186 pounds for Group III (Peace River Region) to about 252 pounds for Group II (North West Region), (Table 16).

Average total value of production (bulk honey sales, other honey sales and miscellaneous income) was $175 per hive or $0.88 per pound of honey produced for the study sample. It ranged from $162 per hive in the Peace River Region to $225 per hive in the North West Region. By size of operation, average value of production ranged from $171 per hive for Group V (600 to 1,000 hives) to $193 per hive for Group IV (up to 600 hives).

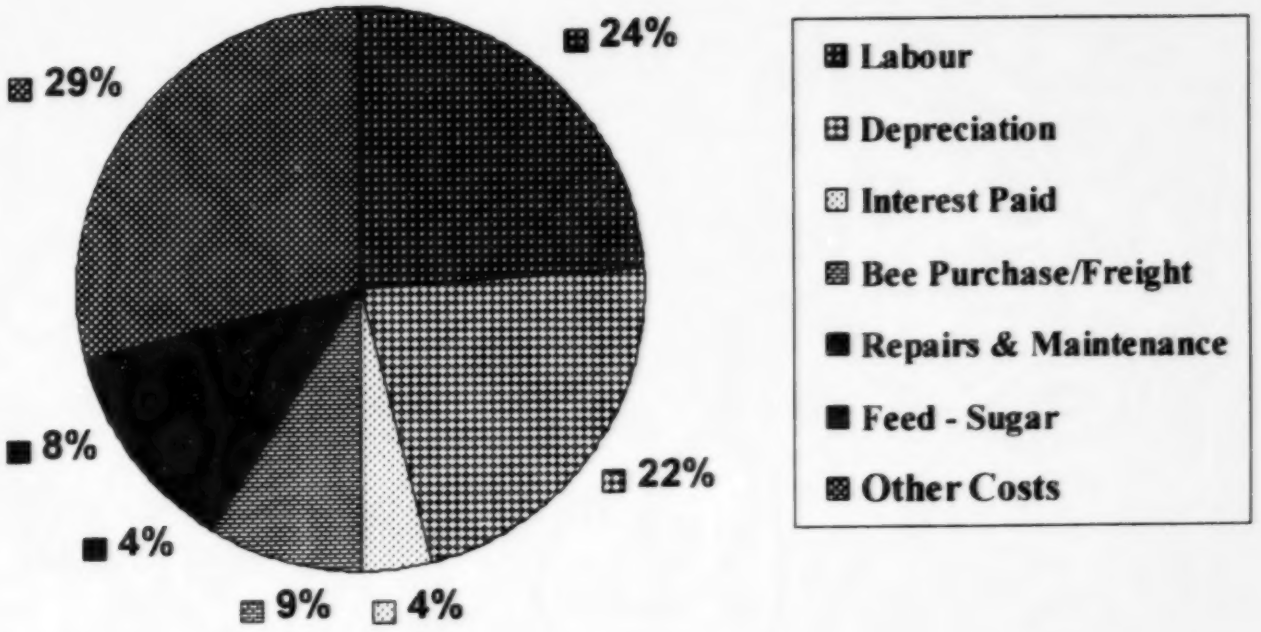
Details on cash costs (input costs, feed-sugar and hired labour), operator and family labour, capital costs are also presented in Table 18 for the study sample (Alberta), by regions and size of operation. Average total production cost was estimated at $146 per hive for the study sample ($0.73 per pound of honey produced). Figure 2 shows the relative proportions of all costs for honey production in Alberta. These costs ranged from $142 per hive in the South, Central and North East regions to $154 per hive in the Peace region. By size of operation, total production costs ranged from $139 per hive ($0.69 per pound) for Group V (over 1,000 hives) to $166 per hive ($0.73 per pound) for Group IV (up to 600 hives). Average total production costs were $148 per hive ($0.77 per pound of honey produced) for the honey producers in Group V (600 to 1,000 hives).

TABLE 18: A SUMMARY OF HONEY PRODUCTION COSTS AND RETURNS BY REGION AND SIZE OF OPERATION, 1998

			By Region						By Size of Operation					
	ALBERTA		SOUTHERN CENTRAL, NE REGIONS		NORTH-WEST REGIONS		PEACE RIVER REGION		UP TO 600 HIVES		601 TO 1,000 HIVES		OVER 1,000 HIVES	
Average Number of Hives	966		1,317		620		818		357		845		1,878	
	Per Hive	Per Pound Produced	Per Hive	Per Pound Produced	Per Hive	Per Pound Produced	Per Hive	Per Pound Produced	Per Hive	Per Pound Produced	Per Hive	Per Pound Produced	Per Hive	Per Pound Produced
Average Yield Per Hive (lbs.)	199.09		186.29		254.47		181.73		227.09		190.61		195.17	
Bulk Honey Sales ($)	159.72	0.80	153.07	0.82	216.27	0.85	158.20	0.87	192.37	0.85	166.26	0.87	160.87	0.82
Other Honey Sales *	15.22	0.08	9.31	0.05	8.45	0.03	3.87	0.02	5.83	0.02	4.11	0.02	9.89	0.05
Miscellaneous Income	.04	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00
TOTAL VALUE OF PRODUCTION ($)	174.98	0.88	162.44	0.87	224.72	0.88	162.07	0.89	198.20	0.87	170.53	0.88	170.76	0.87
CASH COSTS ($)	66.73	0.34	72.77	0.39	54.36	0.21	62.45	0.34	77.10	0.34	63.87	0.34	70.47	0.36
Feed - Sugar	11.66	0.06	10.93	0.06	12.87	0.05	12.43	0.07	12.91	0.06	8.76	0.05	12.43	0.07
Hired Labour	16.71	0.8	14.94	0.08	17.36	0.07	20.68	0.11	7.95	0.03	20.06	0.11	12.38	0.06
A Total Cash Costs ($)	95.10	0.48	98.64	0.53	84.59	0.33	95.56	0.52	97.96	0.43	92.69	0.49	95.28	0.49
B Operator & Family Labour	17.61	0.09	14.05	0.08	24.66	0.10	20.35	0.11	32.72	0.14	21.33	0.11	12.38	0.06
C Capital Costs	32.80	0.16	28.97	0.16	37.32	0.15	38.64	0.21	35.68	0.16	33.51	0.18	31.80	0.16
TOTAL PRODUCTION COSTS (A+B+C) ($)	145.51	0.73	141.66	0.76	146.57	0.58	154.44	0.85	166.36	0.73	147.53	0.77	139.46	0.71
RETURN OVER CASH COSTS ($)	79.88	0.40	63.80	0.34	140.13	0.55	66.51	0.37	100.24	0.44	77.84	0.41	75.48	0.39
RETURN TO INVESTMENT ($)	33.04	0.17	23.37	0.13	81.68	0.32	13.76	0.08	37.49	0.17	28.82	0.15	33.50	0.17
RETURN TO EQUITY ($)	29.48	0.15	20.78	0.11	78.15	0.31	7.63	0.04	31.84	0.14	23.00	0.12	31.31	0.16
AV. INVESTMENT PER HIVE ($)	346.39	1.74	303.35	1.63	396.99	1.56	411.29	2.26	406.06	1.79	373.47	1.96	321.10	1.65

*Includes honey inventory and wax/pollen/other sales

Figure 2: Breakdown of Honey Production Costs, 1998



Returns to value of honey over cash costs were positive for the study sample and all groups (by regions and size of operation). The highest return over cash costs was $98 per hive for the honey producers in the Southern, Central and North Eastern regions. It was $95 per hive for the study sample, $85 for beekeepers in the North West region and $95 per hive in the Peace River region. Average gross margin was $80 per hive for the study sample in 1998. Gross margin for honey producers by regions ranged from $64 per hive for Group I (Southern, Central and North East regions) to $140 per hive for Group II (North West) producers. Average return to unpaid labour, investment and equity were $47, $33 and $29 per hive, respectively.

Returns to unpaid labour, investment and equity for beekeepers grouped by size of operation were positive for the three groups. Average return to unpaid labour was the highest at $65 per hive for Group IV beekeepers (up to 600 hives), followed by other two groups at $44 per hive.

Details on management indicators for the study sample, by regions and size of operation are presented in Table 18. Average investment per hive for the various groups, including the study sample, are also given in this table. In 1998, investment per hive for the study sample of 19 beekeepers was $346. It amounted to $237 per hive for the beekeepers in the pollination group. By regions, investment per hive ranged from $303 for Group I to $400 for Group III (Peace River region). By size of operation, average investment per hive was the lowest at $321 for Group VI (over 1,000 hives), $373 for Group V (600-1,000 hives) and $404 for the smallest group of beekeepers, Group IV (up to 600 hives).